DOCUMENT RESUME

ED 295 757 PS 017 427

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TITLE A Three-Year Longitudinal Study of the Sustained Effects of Early Childhood Education on the Kindergarten and First Grade Performance of Former Program Participants.
INSTITUTION Louisiana State Dept. of Education, Baton Rouge. Office of Research and Development.
PUB DATE Apr 88
NOTE 24p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 5-9, 1988).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Early Childhood Education; Educational Improvement; *Elementary School Students; Followup Studies; Grade 1; Grade 2; *High Risk Students; Kindergarten; *Kindergarten Children; Longitudinal Studies; *Outcomes of Education; Primary Education; Program Evaluation; *School Readiness; State Programs
IDENTIFIERS Louisiana; *Louisiana Early Childhood Development Program

ABSTRACT

Examined are longitudinal impacts of Louisiana's Early Childhod Development Program for children at risk of being unprepared for school. Teachers' assessments of children enrolled in kindergarten, first grade, and second grade during the 1987-88 school year were obtained with the Early Childhood Development Program Follow-up Study Instrument, a measure that identifies seven areas basic to early childhood development and asks teachers to assess the performance of program graduates relative to that of their present classmates. The discussion of results focuses on grade level progression of program participants, a comparison of the classroom performance of program participants and their classmates, and student rating percentages across the developmental areas of degree of independence, receptive and expressive communication, and cognitive, social, and fine and gross motor development. Specifically, of 1,648 former participants, 93.6 percent were enrolled at the normal grade level. The performance of students was rated by teachers as mainly in line with that of nonparticipating peers across all three grades. Developmentally, the majority of program participants were at least at the level of peers and some students were above class average. (RH)

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A THREE-YEAR LONGITUDINAL STUDY OF THE SUSTAINED EFFECTS OF EARLY CHILDHOOD EDUCATION ON THE KINDERGARTEN AND FIRST GRADE PERFORMANCE OF FORMER PROGRAM PARTICIPANTS

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Evaluation Section
Office of Research and Development
Louisiana Department of Education

PS 017427

Paper presented at the annual meeting of the American Educational Research Association, New Orleans, Louisiana, April 1988

LOUISIANA DEPARTMENT OF EDUCATION

This public document was published at a total cost of $113.30; 75 copies of this public document were published in this first printing at a cost of $113.30. This document was published by the Louisiana Department of Education, P.O. Box 94064, Baton Rouge, Louisiana 70804-9064, to report evaluation findings under authority of Louisiana R.S. 17:21. This material was printed in accordance with the standards for printing by state agencies established pursuant to R.S. 43:31.

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Introduction

Traditionally, the home has served as the first classroom within which children are exposed to learning. However, current economic and social trends have led to an increase in the incidence of early learning taking place in settings outside of the home. In today's society, two-career families and working single parents are becoming the norm. In the United States over half of the mothers with children between the ages of three and five work outside the home, with that percentage expected to increase in the next few years. This changing nature of the American family, coupled with the growing awareness of the importance of learning and development during the preschool years, have provided the impetus for an increase in the number of early childhood programs currently available in this country.

However, the demand for such programs is far greater than the number presently available. Compounding the situation is the projection from Congress's Select Committee on Children and Families, that the number of children under age six is expected to grow to 23 million by 1990. Additionally, the proportion of poor children in the United States is steadily increasing; at present, one in four is born into poverty. These are the very children who have the most to gain from quality early childhood programs.

Over the last 30 years most of the funding for early childhood programs has been provided by the federal government, with the majority of such programs directed toward children from low-income families. Programs such as Head Start and subsidized child care have

provided services to large numbers of prekindergarten-aged children. Compensatory education has been delivered by Title I of the Elementary and Secondary Education Act of 1965, now Chapter I of the Education Consolidation and Improvement Act of 1981. Historically, priority in the Chapter I program has been given to children enrolled in kindergarten through grade 12; consequently, in the past, little Chapter I money has usually been available for serving very young children. However, the current trend appears to be moving toward serving identified high-risk children at an earlier age.

Recent research in early childhood education has provided cost-benefit information relative to the merits of investing in such programs for young children at risk of scholastic failure. The study of the Perry Preschool Project measuring the effects of the Ypsilanti, Michigan, prekindergarten program on youths through age 19 years, indicates that the initial investments made by the systems involved in the program were recovered by the time the participants graduated from high school. (In that project, the per pupil cost was approximately $5,000.) The results suggest that state and local governments stand to profit most from such investments because they eventually bear the largest burden of paying for programs addressing juvenile delinquency, teenage pregnancy, and welfare assistance.

A report prepared by the National Association for the Education of Young Children indicates that, during the 1985-86 school year, state education agencies in 15 states and the District of Columbia funded, or were developing plans for funding, prekindergarten programs for four-year-olds in the public schools. Other than New York, California, Pennsylvania, and New Jersey, state education agencies

have not funded prekindergarten programs (except for handicapped children) until relatively recently. Since 1980, however, Maryland, Oklahoma, South Carolina, Florida, and Maine, along with Louisiana, have initiated state-funded prekindergarten programs. New programs were begun during the 1985-86 school year in Texas, Ohio, Illinois, Michigan, and Massachusetts. A number of other states, including Connecticut, North Carolina, and Minnesota, are currently developing initiatives for early childhood programs. Funding legislation for comparable programs is pending in a number of other states.

Essential Components of an Early Childhood Education Program

Research in an early childhood education concludes that quality in preschool programs is essential if such programs are to have long-term benefits. As defined by Schweinhart, Berrueta-Clement, Barnett, Epstein, and Weikart, quality in early childhood programs necessitates parental involvement, programmatic leadership by supervisors and directors, competent and genuinely enthusiastic teachers, an articulated curriculum of proven effectiveness, a sound inservice training program, and specific feedback provided by program evaluation. In a quality early childhood program children are taught two things: how to be good learners and how to work with adults who are not members of their own families.

While most early childhood programs do focus on the attainment of these two goals, considerable variety generally exists among individual programs in the manner in which these goals are addressed. However, there is a growing body of research evidence that suggests that the character of the learning provided in early childhood

programs may be the most crucial factor in determining the impact of such programs on the children served. There is no real value in having a young child leave home for a few hours a day to be with an adult (other than a parent) and a group of children unless the program in which the child participates is carefully designed and implemented in such a way as to meet his/her specific needs. We know that young children do not learn in the same ways as older children and adults. Due to the newness of the environment into which they are placed, young children learn best through direct contact with the world around them, rather than through formal education with its heavy reliance on symbolic rules. This fact was noted in the writings of Froebel, Montessori, and Piaget, and has been consistently upheld by current researchers in the area of child development.

According to Boegehold, Cuffaro, and Hooks of the Bank Street College of Education, the most effective early childhood education program is one that focuses on child-initiated activities. David Elkind agrees and advocates that early childhood education should encourage self-directed learning by providing an environment rich in materials to explore, manipulate, and talk about. Such a program establishes a setting and provides the appropriate materials and supportive personnel to facilitate the development of the whole child. It offers a unique atmosphere with free play at one end of the spectrum, and narrowly focused academics at the other. According to Elkind, nearly half of the reading problems found in students results "not from starting children too late, but from starting them too early." Speaking at the November 1986 conference of the National Association for the Education of Young Children, Elkind indicated that

the "force-feeding" of reading, writing, and arithmetic on preschool-aged children often undermines a child's self-confidence and can lead to learning problems in later grades. Samuel Sava, executive director of the National Association of Elementary School Principals, concurred in stating that such force-feeding at this early age frequently turns children off with respect to education, and it is often very difficult to turn them back on to learning. The teacher's role in an effective early childhood program is seen as that of a nurturing person who (1) views thinking and feeling as interactive processes; (2) is a resource person in support of the child as an explorer and experimenter; and (3) is a supplier of materials and an initiator of programs. Interaction among program participants (children, teachers, and parents) is viewed as the most effective method of developing the desired social, affective, and cognitive learning.

Good early childhood programs incorporating these key components have helped children overcome some of the effects of poverty. Such programs have been shown to have a lasting impact on adult life. Though the number of such programs is still relatively small, the increasing number of states becoming involved in early childhood education represents a genuine effort to address the needs of the large number of children who could truly benefit from program participation.

The Louisiana Early Childhood Development Program

Background

Recognizing the need for providing early childhood development programs in Louisiana, the 1984 Legislature appropriated funds through Act 619 to establish 10 early childhood development pilot projects during the 1984-85 school year. School systems were invited to compete for program funds through submission of proposals to the Department of Education. Ten grants were subsequently awarded, the result being that 10 early childhood development projects were initiated during the 1984-85 school year.

In 1985, Act 323 (R.S. 17:24.7) of the Louisiana Legislature extended the initial, pilot effort by authorizing annual funding of early childhood development projects beginning with the 1985-86 school year. The increased appropriation concurrently provided enabled all systems to apply for funding for up to four projects each, in accordance with a formula established by Act 323 that was based on school system enrollment. Thirty-seven of the state's 66 local school systems participated during the 1985-86 school year through the implementation of 50 early childhood classes statewide.

Funding for the 1986-87 program was authorized by the 1986 Legislature, with all systems again being eligible to apply for funds in accordance with total student enrollment levels. Fifty systems elected to participate for 1986-87, for an overall total of 71 classes statewide.

For the 1987-88 school year, budgetary constraints have caused the program to be limited to ongoing programs; no proposals for new

programs were accepted. Consequently, program participation was limited to the 50 systems that had offered early childhood classes in 1986-87.

Program Goals

The purpose of the Louisiana Early Childhood Development Program is to improve the readiness of preschool-aged children. The target population includes children who are eligible to enter kindergarten the following year, who are at high risk of being insufficiently ready for the regular school program, and who have not been identified as eligible for special education services.

Among other requirements related to implementation of the early childhood development projects, Act 323 directs each participating school system to provide the Department of Education with a "thorough written review of the project including documentation of how the money awarded...was spent, its results, and the recommendations of the school system with regard to the project...." In addition to these individual project evaluations required by statute, the Department's Bureau of Evaluation has been responsible for conducting the state's evaluation of the impact and effectiveness of the program since its initiation. The study discussed in this paper represents the longitudinal portion of the overall 1987-88 early childhood program evaluation.

Purpose of the Study

The purpose of the overall evaluation of the Early Childhood Development Program is to provide information to decision makers at

the state level to assist them in making judgements about the extent to which the intended goals for early childhood development in the public schools have been attained, and about potential modifications needed relative to the operation and administration of the program. The portion of the overall evaluation addressed by this paper examines the longitudinal impact of the program on former participants enrolled in kindergarten, first grade, and second grade during the 1987-88 school year.

Data Sources

Data sources employed in the conduct of the study include reviews of current educational literature in the area of early childhood education, as well as the results of the assessments provided by kindergarten, first grade, and second grade teachers relative to the performance of former program participants. These assessments were made through the completion of the Early Childhood Development Program Follow-up Study Instrument adapted from the Statewide Evaluation of Early Education Programs for Handicapped Children in Louisiana, 1985-86 -- Questionnaire/Interview, Kindergarten Teachers (1985) by Anderson and Bower of the Louisiana Department of Education. The instrument identifies the seven areas basic to early childhood development, and requests that the kindergarten, first, and second grade teachers currently working with these program graduates assess the performance of those students relative to that of their present classmates.

Presentation of the Data and Discussion of the Results

Background

The Early Childhood Development Program was initiated through the implementation of 10 pilot classes during the 1984-85 school year. Since that time, the initial pilot-year graduates could have theoretically progressed through both kindergarten and first grade, with the majority currently enrolled in second grade. Graduates of the 1985-86 program could now be in first grade, while 1986-87 participants could be in kindergarten.

Since the second program year, follow-up studies of program graduates have been conducted as part of the state's evaluation of the longitudinal impact of early childhood education on subsequent school performance. In this interim report, such longitudinal information is presented for all three groups of former participants involved in the program since its initial year of operation (1984-85).

Before reviewing these data, it is important to recall that eligibility for participation in the four-year-old program is based on the identification of developmental deficiencies among potential candidates. Once diagnosed as being "at high risk" of being insufficiently ready for the regular school program, it is generally expected that, without some form of intervention, such students will subsequently be less well-developed socially, physically, and intellectually than other children their own age.

Grade Level Progression Results

One aspect of the longitudinal study of former early childhood program participants focused on the actual progression of such students through the regular school program. Among program graduates those among the initial 1984-85 group subsequently assessed to be on-level with their peers would be expected to have progressed to second grade by 1987-88, the 1985-86 graduates could have advanced to first grade this school year, and the 1986-87 group could currently be in kindergarten. The actual placement of such students for the 1987-88 school year is shown in Table 1.

As illustrated in the table, placement data were obtained relative to 1648 former early childhood program participants. Of that number, 112 were enrolled during the initial program year (1984-85), 622 participated during 1985-86, and 914 were involved in the 1986-87 program.

Among 1984-85 early childhood program participants, the highest grade level to which these students could have progressed is second grade. Data received relative to these students indicate that 72 of the 112 (64.3%) are currently enrolled in second grade. However, 31 (27.7%) of the students in that 1984-85 group are currently enrolled in first grade, with the remaining 8.0 percent (9 students) being in kindergarten for 1987-88. Overall, 64.3 percent have progressed to their maximum expected grade level (second grade), while 35.7 percent are one to two years below that level.

Grade level data received with respect to 622 of the children who were in the 1985-86 program indicate that 556 of these former program participants (89.4%) are currently at their maximum expected first

Table 1. Current Grade Placement of Former Early Childhood Program Participants
(N=1648)

	Year of Program Participation	Expected Current Grade Level	Actual Grade Placement for 1987-88: Kindergarten N	Kindergarten %	First Grade N	First Grade %	Second Grade N	Second Grade %
I.	1984-85 (N=112)	Second grade	9	8.0	31	27.7	72	64.3
II.	1985-86 (N=622)	First grade	66	10.6	556	89.4	-	-
III.	1986-87 (N=914)	Kindergarten	914	100.0	-	-	-	-

grade level. The remaining 66 (10.6%) are enrolled in kindergarten during the 1987-88 school year.

Among 1986-87 program participants, longitudinal data were received for 914 children. Analyses of these data show that all of the children (100.0%) for whom such information was received are currently enrolled at the maximum expected kindergarten level.

Aggregation of the grade level progression data for the 1648 former early childhood program participants for whom such information was received indicates that overall, 93.6 percent of these program graduates are on-line with their peers in terms of their current grade-level enrollment. Correspondingly, the other 6.4 percent have fallen behind their peers in terms of the maximum grade level to which they could theoretically have advanced by the 1987-88 school year.

Performance Results

A second aspect of the longitudinal study of former early childhood program participants focused on the classroom performance of these students compared with that of their 1987-88 kindergarten, first grade, and second grade peers. Teachers currently working with program graduates were asked to rate the performance of these program graduates in comparison with that of the other children in their respective classes who had not been involved in the program. Factors assessed in the rating included cognitive development, degree of independence, social development, receptive communication, expressive communication, fine motor development, and gross motor development. Numerical values to be used in assessing student performance in each of these areas ranged from 1.0 to 4.0, with the former representing

the most positive rating of "above class average," and the latter representing the most negative assessment of "unsatisfactory."

As illustrated in Table 2, former early childhood program participants currently enrolled in kindergarten attained mean ratings between 1.9 and 2.0 in all seven developmental areas addressed by the scale. These students were reported to be on line with class average in six of the seven areas assessed (cognitive development, degree of independence, social development, receptive communication, expressive communication, and fine motor development). In the seventh area (gross motor development), ratings of very slightly above class average were reported.

Among early childhood program graduates currently enrolled in first grade, mean ratings ranged from 1.8 through 2.0. Such students were reported as being on line with class average in five areas (cognitive development, degree of independence, social development, receptive communication, and expressive communication), and very slightly above class average in the other two (fine motor and gross motor development).

Mean ratings assigned to program graduates currently enrolled in second grade ranged from 1.8 through 2.1. These students were assessed to be very slightly below class average in one area (fine motor development), and very slightly above class average in the other six.

Viewing the mean scores of the students in each group across all seven developmental areas reveals that, among former program participants currently enrolled in kindergarten and first grade, the gross motor development area was the one in which these students were

Table 2. Mean Ratings of the Current Performance of Former Project Participants in Comparison With That of Their Nonparticipant Peers

Rating Scale: 1.0 = above class average
2.0 = on line with class average
3.0 = slightly below class average
4.0 = unsatisfactory

Developmental Areas	1987-88 Mean Ratings by Current Grade Placement					
	Kindergarten		First Grade		Second Grade	
	N	Rating	N	Rating	N	Rating
1. Cognitive development	1080	2.0	640	2.0	72	1.8
2. Degree of independence	1082	2.0	641	2.0	72	1.9
3. Social development	1082	2.0	639	2.0	72	1.9
4. Receptive communication	1079	2.0	637	2.0	71	1.9
5. Expressive communication	1080	2.0	640	2.0	72	1.9
6. Fine motor development	1083	2.0	640	1.9	72	2.1
7. Gross motor development	1082	1.9	640	1.8	72	1.8

most positively rated (1.9 and 1.8, respectively). Among second grade students, both cognitive development and gross motor skills received the highest ratings at 1.8 each.

Rating Percentages by Developmental Areas

Information concerning the percentages of former early childhood program participants who received ratings at each of the designated levels (1.0 through 4.0) with respect to the seven developmental areas is presented in Table 3. As illustrated, those percentages are broken out in accordance with the 1987-88 grade level placement of program graduates.

In the area of cognitive development, former program participants currently enrolled in kindergarten were most often assessed to be on line with class average, as evidenced by the 49.5 percent frequency rating associated with that option. However, 28.1 percent were rated as above class average in this area. Overall, 22.4 percent were found to be below class average, when the slightly below class average and unsatisfactory frequencies are combined.

Similar findings were observed among program graduates currently enrolled in first and second grade. Within the first grade group, 51.7 percent were reported to be on line with class average in the area of cognitive development, and 28.6 percent were rated as above class average in performance comparisons with their nonparticipant peers. Below class average ratings were assigned to a combined total of 19.7 percent of these students.

Likewise, 50.0 percent of the program graduates currently in second grade were rated as on line with class average, and 34.7

Table 3. Rating Percentages of the Current Performance of Former Project Participants by Developmental Area

Developmental Areas	% above class average	% on line with class average	% slightly below class average	% unsatisfactory
1. Cognitive development				
A. Kindergarten (N=1080)	28.1	49.5	17.2	5.2
B. First grade (N=640)	28.6	51.7	15.6	4.1
C. Second grade (N=72)	34.7	50.0	13.9	1.4
2. Degree of independence				
A. Kindergarten (N=1082)	28.1	51.3	16.4	4.2
B. First grade (N=641)	27.5	49.0	17.3	6.2
C. Second grade (N=72)	40.3	31.9	25.0	2.8
3. Social development				
A. Kindergarten (N=1082)	25.7	51.7	17.9	4.7
B. First grade (N=639)	25.2	55.2	15.8	3.8
C. Second grade (N=72)	34.7	41.7	20.8	2.8
4. Receptive communication				
A. Kindergarten (N=1079)	26.6	52.7	17.4	3.2
B. First grade (N=637)	25.6	55.6	14.6	4.2
C. Second grade (N=71)	39.4	36.6	22.5	1.4
5. Expressive communication				
A. Kindergarten (N=1080)	24.0	53.7	17.8	4.5
B. First grade (N=640)	22.7	55.0	18.4	3.9
C. Second grade (N=72)	30.6	47.2	20.8	1.4
6. Fine motor development				
A. Kindergarten (N=1083)	26.7	48.9	20.5	3.9
B. First grade (N=640)	26.6	58.4	12.8	2.2
C. Second grade (N=72)	22.2	48.6	29.2	0.0
7. Gross motor development				
A. Kindergarten (N=1082)	26.5	63.4	8.6	1.5
B. First grade (N=640)	28.0	65.6	5.6	0.8
C. Second grade (N=72)	36.1	51.4	12.5	0.0

percent were found to be above class average in cognitive development. A total of 15.3 percent were found to be below class average in this area.

Examination of the ratings assigned in the area of degree of independence indicates that, while program graduates in kindergarten and first grade were most likely to be rated as on line with class average (reported for 51.3 and 49.0 percent of those students, respectively), the most frequent rating assigned to students in the second grade group was that of above class average (for 40.3 percent). Additional rating breakdowns are illustrated in Table 3.

In the area of social development, program graduates in all three groups were most often rated as on line with class average. This rating was received by 51.7 percent of the kindergarten students, 55.2 percent of the first grade students, and 41.7 percent of students currently enrolled in second grade.

In receptive communication skills development, kindergarten and first grade students were most often assessed to be on line with class average (for 52.7 and 55.6 percent, respectively). However, second grade students were more often rated as above class average (among 39.4 percent).

In the three remaining skill areas, students in all three groups were most often found to be on line with class average. With respect to the development of expressive communication skills, this rating was assigned to 53.7 percent of the kindergarten students, 55.0 percent of the first grade students, and 47.2 percent of the students currently enrolled in second grade. The percentages receiving this rating in the area of fine motor skills development were 48.9 percent, 58.4

percent, and 48.6 percent for the three groups, respectively. Gross motor skill ratings of on line with class average were assigned to 63.4 percent of the kindergarten students, 65.6 percent of the first grade students, and 51.4 percent of the program graduates currently enrolled in second grade.

Examination of these data from another perspective reveals that a minimum of 75.6 percent of the former early childhood program participants currently in kindergarten received ratings of at least on line with class average in each of the seven developmental areas addressed on the Follow-Up Study instrument. The maximum percentage to receive at least that rating was 89.9 percent, in the area of gross motor skills development. Among program graduates in first grade during 1987-88, at least 76.5 percent were on line with class average in each of the seven areas, with 93.6 percent attaining at least that rating in the gross motor skills development area. Similar results were reported among current second grade students who had participated in the 1984-85 early childhood program. At least 70.8 percent were assessed as on line with class average or above, with 87.5 percent attaining at least that rating in the area of gross motor skills development.

Educational Importance of the Study

Good early childhood programs have been shown to be successful in helping high risk children overcome some of the effects of poverty. Such programs have made a lasting impact on adult life. Though the number of such state-funded programs is still relatively small, the

increasing number of states becoming involved in early childhood education represents a genuine commitment on the part of these states to address the needs of the large number of children who could truly benefit from program participation. Continued research efforts must be directed toward documenting the longitudinal impact of such programs on former participants so that the maximum benefits of early childhood education can be realized.

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